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SKIN COSMETIC
[Hifu keshoryo]

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[Claim(s)]

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[Claim 1] Skin cosmetic containing mucopolysaccharide, soluble egg shell membrane, and a phosphate ester type amphoteric surfactant.

[Detailed Explanation of this Invention]

[0001] [Industrial Application]

This invention relates to skin cosmetics excellent in functional characteristics.

[0002] [Description of the Prior Art]

Generally, the skin in the condition containing 10 - 15% moisture is called healthy skin. Moreover, since the normal keratin moisture adjustment mechanism worsens with aging, seasonal changes, etc., the moisture maintenance of the surface layer skin is an important role of skin cosmetics. Although moisturizers, such as glycerol, is used conventionally, its moisture absorption property easily causes stickiness, and further, when used under low humidity, moisture is reversely taken into the moisturizer from the skin due to the absence of humidity in the air, making the skin drier. Although the skin cosmetics (JP S57-185208) characterized by containing mucopolysaccharide were proposed in order to solve the abovementioned problem, the stickiness, clamminess, etc. of mucopolysaccharide remain on the skin, thereby not providing functional characteristics preferable for cosmetics.

* Numbers in the margin indicate pagination in the foreign text.

[0003] [Problem(s) to be Solved by the Invention]

In order to solve the abovementioned problems, skin cosmetics (JP H3-190808) prepared by blending soluble egg shell membrane with mucopolysaccharide were proposed. However, when this invention was investigated closely, it was found that, although it excelled in beautifying the skin, the stickiness, clamminess, etc. of mucopolysaccharide remain on the skin, thereby not providing functional characteristics preferable for cosmetics.

[0004] Hence, the developers of this invention thoroughly investigated the combination of mucopolysaccharide, soluble egg shell membrane, and other active ingredients, and discovered that after-mentioned specific skin cosmetics could provide sufficient moisture-retention property, excellent skin beautification effect, and preferable functional characteristics. Thereby, this invention was completed.

[0005] The purpose of this invention is to provide skin cosmetics which provide sufficient moisture-retention property, excellent skin beautification effect, and preferable functional characteristics.

[0006] [Means for Solving the Problem]

The abovementioned object can be attained by the skin cosmetics prepared by blending mucopolysaccharide, soluble egg shell membrane, and a phosphate ester type amphoteric surfactant.

[0007] The mucopolysaccharide in this invention is the polysaccharide consisting of D-glucuronic acid and N-acetyl-D-glucosamine, its salt, or a derivative. Practical examples are hyaluronic acid, dermatan acid, chondroitin sulfate, etc. extracted from a crest, umbilical cord, eyeball, skin, and cartilaginous tissue, and refined with the conventional method. Moreover, it may be synthesized by the microorganism fermentation method.

[0008] In addition, the soluble egg shell membrane is the material generally known to be obtainable by solubilizing the membrane (egg shell membrane) attached to the inner wall of bird's egg shell (e.g., hen's egg and quail egg shells) with an acid agent, alkali agent, organic solvent, oxidation/reduction agent, etc. Examples are the materials prepared by the methods described in JP S48-40943, JP 1-275512, etc.

[0009] The phosphate ester type amphoteric surfactant in this invention is well-known (JP H1-139588). Practical examples are 2-(N-dodecyl-N, N-dimethylammonio) ethyl phosphoric ester, 2-(N-tetradecyl-N, N-dimethylammonio) ethyl phosphoric ester, 2-(N-hexadecyl-N, N-dimethylammonio ethyl) phosphoric ester, 2-(N-octadecyl-N, N-dimethyl ammonio ethyl) phosphoric ester, 2-(N-tetradecyl-N, N-dimethylammonio ethyl) phosphoric ester sodium, 2-(N-hexadecyl-N, N-dimethylammonio ethyl) phosphoric ester sodium, 2-(N-octadecyl-N, N-dimethylammonio ethyl) phosphoric ester sodium, etc.

[0010] The preferable composition amounts of mucopolysaccharide, phosphate ester type amphoteric surfactant, and soluble egg shell membrane are 0.001% - 5%, 0.01% - 10%, and 0.01% - 2.0% respectively. That is, in either case, if the composition amount is too small, the moisturizing effect of cosmetics cannot be obtained, whereas an exceeding amount makes the cosmetic sticky and is not desirable.

[0011] The skin cosmetics of this invention can be made into products, such as lotion, milky lotion, cream, ointment, facial pack, and powder, using conventional methods. Moreover, a surfactant, moisturizer, pH regulator, thickener, germicide, antiseptics, keratolytic agent, anti-oxidant, fragrance, coloring agent, ultraviolet ray absorbent, a pigment, etc. can be suitably blended with the skin cosmetics of this invention within limits permitting to attain the object of this invention.

[0012] [Operational Examples]

Hereafter, this invention is further explained in detail with operational examples. The composition amount (%) described below indicates weight %. In addition, functional characteristics test given in the operational examples are as following.

[0013] (1) Functional characteristic test method

After making 20 female subjects (35 - 55 years old) who had rough skin, fine lines, dry skin, etc., to use the samples twice a day (morning and evening) continually for two months, the improvement over the skin softness was evaluated by each subject. The total

numbers of answers for the results (i.e., "hardly any stickiness", "no clamminess and excellent soaking in skin", "moistened feel") given by subjects were used as the results.

[0014] Operational examples 1 - 3, Comparison examples 1 - 3:

[Skin cream]

The skin cream of this invention and skin cream for comparison were prepared, and the abovementioned tests were performed. The results are shown in Table 2.

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[0015] (1) Composition

[Table 1]

Raw material composition		Composition amount (%)
(A)	Scualan	10.0
	Olive oil	10.0
	Solid paraffin	5.0
	Cetanol	4.0
	Sorbitane monostearate	2.0
	Polyoxy ethylene sorbitane monostearate	2.0
(B)	Components shown in Table 2	Composition amount shown in Table 2
	Refined water	30.0
(C)	Glycerin	5.0
	Methyl parapene	0.1
	Refined water	Remaining of 100%

0016] (2) Preparation method

Composition (C) was evenly mixed at about 80°C and added to the composition (A) mixed and dissolved uniformly at about 80°C previously. Then, after the mixture was emulsified, the composition

(B) mixed and dissolved uniformly at about 50°C beforehand and cooled to about 30°C.

[0017] (3) Characteristics

[Table 2]

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		Op. 1	Op. 2	Op. 3	Com. 1	Com. 2	Com. 3
A	Hyaluronic acid	0.1	1.0	0.1	-	0.1	0.1
	Soluble egg shell membrane	0.5	0.1	0.5	0.5	-	0.5
	2-(N-hexadecyl-N, N-dimethylammonio ethyl) phosphoric ester	0.5	0.5	0.1	0.5	0.5	-
B	Hardly any stickiness	18	16	17	17	8	7
	Moistened feel	20	20	20	9	10	10
	No clamminess and excellent soaking in skin	18	15	18	18	18	6

Key: A...Components; B...Functional characteristics; Op...Operational example; Com...Comparison example

[0018] In addition, the soluble egg shell membrane described in Table 2 and Table 3 (shown later) was prepared as follows. After 1200 ml of 2-N sodium-hydroxide aqueous solution and 800 ml of dehydrated ethanol were added to 100 g of dry egg shell membrane, the mixture was processed at 40°C for 5 hours with stirring. This liquid was filtered with a cloth filter, neutralized, desalted, and freeze dried. Thus, soluble egg membrane was obtained.

[0019] As shown in this table, compared with the skin cream of Comparison examples 1 - 2, the skin cream of Operational examples 1 - 3 of this invention showed excellent results to every test.

[0020] Operational example 4, comparison example

[Skin lotion]

Skin lotions of this invention and skin lotions for comparison were prepared by the following process with the compositions shown in Table 3.

[0021] (2) Composition

[Table 3]

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Raw material components		Composition amount (%)
(A)	Ethanol	10.0
	2-(N-2-hydroxy tetradecyl-N-methylamino) ethyl phosphoric ester Na	0.3
	Fragrance	0.1
(B)	Glycerin	5.0
	Hyaluronic acid	0.3
	Soluble egg shell membrane	0.5
	Refined water	Remaining of 100%

[0022] (3) Characteristics

The numbers of subjects who provided the answers of "hardly any stickiness", "no clamminess and excellent soaking in skin", and "moistened feel" were 20, 18, and 19 respectively, which were excellent results. On the other hand, when the same functional characteristic test was conducted on the skin lotion (Comparison example 3) missing 2-(N-2-hydroxy tetradecyl-N-methylamino) ethyl phosphoric ester Na in the composition shown in Table 3, the numbers of subjects who provided the answers of "hardly any stickiness", "no

clamminess and excellent soaking in skin", and "moistened feel" were 7, 9, and 6 respectively.

[0024] [Effect of the Invention]

As described above, the skin cosmetics of this invention can provide sufficient moisture-retention effect, excellent skin beautification effect, and preferable functional characteristics.